

REMARKS

Claims 2-5, 7-10, 12-20 remain in the application. Applicant respectfully requests reexamination. A request for a one-month extension of time is submitted herewith, along with the appropriate fee.

Claims 1-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over *Lippmann et al.* (U.S. 5,695,269) in view of *Abileah* (U.S. 6,111,622). Applicant respectfully traverses.

Lippmann is directed to an LCD multi-colored display that is backlit by a main light pipe which is fed by a first color LED while a second light pipe fed by a second color LED introduces light to local areas within the display being flooded by the main light pipe. *Lippmann* places filters of the second color over the local areas that are illuminated by the second color LED. The purpose for all this, as illustrated in *Lippmann's* Figure 1, and as explained in column 3, lines 5-19, is to provide a display that is a first color background (i.e., yellow-amber) and a second color for defined regions. The second color defined regions are delineated by the placement of second color filters (i.e., red).

Abileah is directed to a day/night backlight system for a liquid crystal display which utilizes a fluorescent lamp for daytime operation and a separate light source for nighttime operation. The nighttime operation light source, an electroluminescent panel, is combined with a sharp cut-off IR filter to provide compatibility with NVIS-B night-vision goggles.

Applicant's invention solves a problem that neither *Lippmann* nor *Abileah* addresses. Applicant's invention provides a day/night backlight for a liquid crystal display that is compatible with both NVIS Class B goggles and NVIS Class A goggles, thus obviating the requirement for utilizing separate display panels for the different class night-vision goggles. *Lippmann* is directed to an automotive display system and is not concerned with night-vision

displays of any sort. *Lippmann's* use of different colored LEDs to backlight his LCD is for the purpose of creating a variable color display in the daylight.

Abileah, on the other hand, is directed to a backlight system for a liquid crystal display that can be used with night-vision goggles, specifically, NVIS-B, or Class B night-vision goggles. *Abileah's* display cannot be used with NVIS-A, or Class A night-vision goggles. Class A goggles are used to detect infra-red images in limited light or dark environments. Class A goggles require that the IR and all red components must be completely removed from the display, thereby causing the display to be monochrome. Class B night-vision goggles, on the other hand, are designed for use with multi-colored displays. Class B goggles are typically designed for limited external use to wavelengths as low as 655 nm. The Class B displays allow red data to be displayed because the IR filters used are designed to pass a limited amount of red light. *Abileah* only provides a nighttime display for use with Class B night-vision goggles. Class A night-vision goggles could not be used with the display taught by *Abileah*.

The present invention solves the problem of providing a single display for both Class A and Class B night-vision goggles by providing an LED array that has a plurality of colors, typically red, green and blue, which, when combined, produce a white light. According to the invention, when Class B night-vision goggles are being utilized, all the colors in the LED array are lit, creating a white light. The infra-red filter used filters out the infra-red light from the white light, but allows some red light to pass. When Class A night-vision goggles are being utilized for the detection of infra-red images in very limited light or dark environments, only the green LEDs in the LED array are lit. The infra-red filter, which allows some red light to come through, filters out the infra-red. No red light is introduced by the green LEDs. The display is thus compatible with Class A night-vision goggles.

Neither *Lippmann* nor *Abileah* describes a lighting apparatus that has "a switch for selectively powering each same color of light emitting diodes in the color groups in the array or powering all the color groups."

Neither *Lippmann* nor *Abileah* describes a method of providing multi-color and monochrome illumination which utilizes the steps "switching each separate color group on for illumination by one color; and switching all the color groups on for illumination by all the colors."

Neither *Lippmann* nor *Abileah* discloses a lighting apparatus for a liquid crystal display use in the cockpit of an aircraft which has

"d. a switch for selectively powering each same color plurality of light emitting diodes in a group or powering all the light emitting diodes in the array."

Neither *Lippmann* nor *Abileah* teaches or discloses a method for illuminating a liquid crystal display in an aircraft cockpit for viewing by a pilot wearing night-vision goggles which has the step "switching on the light emitting diodes in groups, according to color, as required by a pilot of the aircraft."

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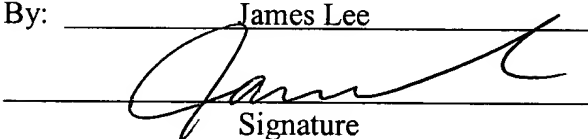
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In light of the above amendment and remarks, applicant believes that all the claims remaining in the application are allowable and that this application is in condition for allowance.

Applicant respectfully requests that this application be passed to issue.

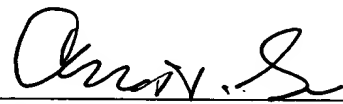
I certify that this document and fee is being deposited on **December 1, 2003** with the U.S. Postal Service "Express Mail Post Office to Addressee" service as Express Mail No. EV 338056886 US under 37 C.F.R. 1.10 and is addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Signature

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Respectfully submitted,

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